

SUPPORT FOR THE AMENDMENTS

Claims 1-7, 20 and 22-24 are amended to use wording and structure consistent with U.S. patent law practice.

Claim 19 is canceled.

No new matter is added to this application by entry of this amendment.

Upon entry of this amendment, Claims 1-7, 20, 22-25 and 27 are active.

REMARKS/ARGUMENTS

The claimed invention provides a process for carrying out a high-temperature reaction, in a reactor comprising a reaction chamber and a quench area, in which starting materials are supplied to the reaction chamber through channels of a burner block, where, in the reaction chamber the high-temperature reaction having a short residence time takes place at a temperature of at least 1500°C and the reaction mixture is subsequently rapidly cooled in the quench area, wherein in the quench area firstly a direct cooling to a temperature in the range from 650°C to 1200°C takes place by supply of an evaporating quench medium and subsequently in the quench area an indirect cooling in a heat exchanger takes place.

The yield of acetylene obtained according to the claimed invention is comparable to conventional high yield processes (page 8, last sentence) while soot formation is reduced in accord with the object of the invention.

The rejection of 1-7, 20, 22-25 and 27 under 35 U.S.C. 103(a) over Passler et al. (U.S. 5,789,644) in view of Stapf et al. (U.S. 6,365,792) is respectfully traversed.

Passler describes a process for the preparation of a mixture of acetylene and synthesis gas by partial oxidation of hydrocarbons wherein the relative proportions of acetylene and synthesis gas is controlled by a perforated plate located over the ducts of the burner

block(Abstract). The oxidation reaction temperature is from 1500 to 2000 °C (Col. 1, lines 30-32) and Passler describes (Col. 1, lines 32-36):

the reaction products are **quenched substantially instantaneously to below 300 degrees Celsius** with water or preferably residue oil, so that the acetylene formed does not decompose into soot and hydrogen. (Bold added for emphasis)

In contrast, according to the process of the claimed invention, the reaction mixture following oxidation at temperature of at least 1500 °C is firstly cooled via a direct cooling to a temperature in the range from 650°C to 1200°C subsequently cooled via an indirect cooling in a heat exchanger. Applicants submit that the claimed process thereby effectively utilizes the heat of reaction while obtaining a yield of acetylene necessary to be economically competitive (page 2, lines 27-30).

The Office acknowledges that Passler does not explicitly disclose wherein the process further comprises a subsequent indirect cooling in a heat exchanger of the quench area (Official Action dated February 24, 2010, page 4, lines 7-8) and cites Stapf as showing a two stage cooling in the quench area.

Stapf describes a process for the preparation of acetylene and synthesis gas wherein the oxidation reaction temperature does not exceed 1400 °C (Abstract). Stapf discusses the process of Passler as being “afflicted with considerable disadvantages”(Col. 3, lines 19-20) and describes an oxidation reaction temperature of greater than 1500 °C as a disadvantage as well as the rapid cooling to a relatively low temperature of 200 to 300 °C. (Col. 3, lines 21-27).

The Office alleges that Stapf provides an improvement to the Passler process and further that one of ordinary skill would have been motivated to modify the Passler process with the quenching of Stapf in order to obtain a more economical process(Official Action dated February 24, 2010, page 4, lines 9-19).

Applicants respectfully disagree and submit that Passler requires a reaction temperature greater than 1500 °C and under such reaction temperature as described in both references a rapid cooling is necessary to prevent decomposition of the acetylene. Therefore, Applicants submit that Passler clearly teaches away from a reaction temperature of less than 1500°C and a two stage quench as described by Stapf.

It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed Cir. 1983).

Moreover, Applicants have described above that Passler requires a rapid direct quenching be associated with the reaction temperature greater than 1500°C. Therefore, incorporating the quench method of Stapf would, in effect, change the principle of the Passler process.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

In a Precedential Opinion rendered by the Board of Patent Appeals and Interferences in *Ex parte Whalen II* (Appeal 2007-4423, Application 10/281,142) on July 23, 2008, the Board stated:

“The KSR Court noted that obviousness cannot be proven merely by showing that the elements of a claimed device were known in the prior art; it must be shown that those of ordinary skill in the art would have had some “apparent reason to combine the known elements in the fashion claimed.””

“The Examiner has not persuasively explained why a person of ordinary skill in the art would have had a reason to modify the compositions taught by Evans, Greff 767, or Taki in a way that would result in the compositions defined by the claims on appeal. Therefore, The Examiner has not made out a *prima facie* case of obviousness under 35 U.S.C. § 103.”

Applicants respectfully submit that the Office has not explained why one of ordinary skill would have proceeded in opposition to the description of the cited references as would be necessary to combine as alleged by the Office.

When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than hindsight gleaned from the invention itself. *Interconnect Planning Corp.* 774 F.2d, 1143, 227 USPQ 551.

Something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick Co.* 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984)

Applicants submit that only in hindsight of the present invention would one have obtained the claimed invention starting with the descriptions of Passler and Stapf. In addition the Office has not explained why, if one were to use the two stage cooling of Stapf, one would employ the high temperature reaction of Passler.

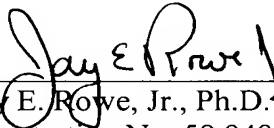
In view of all the above, Applicants submit that a prima facie conclusion of obviousness cannot be supported based on the description of the cited references and therefore, withdrawal of the rejection of 1-7, 20, 22-25 and 27 under 35 U.S.C. 103(a) over Passler in view of Stapf is respectfully requested.

The objection to Claim 19 for depending from a canceled claim is moot in view of the cancelation of the claim herein.

Applicants respectfully submit that the above identified application is now in
condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

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